

WHAT IS CLAIMED IS:

1. A manufacturing method of an electron-emitting device comprising the steps of:

disposing an electrically conductive member having a second gap on a substrate; and

applying a voltage to said electrically conductive member while irradiating at least said second gap with an electron beam from electron emitting means disposed apart from said electrically conductive member in an atmosphere comprising a carbon compound.

2. A manufacturing method of an electron-emitting device comprising the steps of:

disposing first and second electrically conductive members on a substrate with a second gap interposed; and

applying a voltage to said first and second electrically conductive members while irradiating at least said second gap with an electron beam from electron emitting means disposed apart from said electrically conductive members in an atmosphere comprising a carbon compound.

3. A manufacturing method of an electron-emitting device comprising the steps of:

disposing an electrically conductive member having a second gap on a substrate; and

electron-emitting device according to claim 2 or 4, wherein said electrically conductive members are a pair of electrodes which are disposed with said second gap interposed.

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7. The manufacturing method of an electron-emitting device according to claim 2 or 4, wherein said electrically conductive members are a first electrically conductive film and a second electrically conductive film which are connected to a first and second electrodes apart disposed respectively and are disposed with said second gap interposed.

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8. The manufacturing method of an electron-emitting device according to any one of claims 1 through 4, wherein said applied voltage is a pulse like voltage.

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9. The manufacturing method of an electron-emitting device according to any one of claims 1 through 4, wherein said electron beam is at an energy level not lower than 1 keV and not higher than 20 keV.

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10. A manufacturing method of an electron source having a plurality of electron-emitting devices, wherein said electron-emitting device is manufactured by the manufacturing method according to any one of

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claims 1 through 4.

11. A manufacturing method of an image-forming
apparatus having an electron source and an image
5 forming member, wherein said electron source is
manufactured by the manufacturing method according to
claim 10.

10 12. An electron-emitting device having a carbon
film, wherein said carbon film has specific resistance
not higher than 0.001 Ωm .

15 13. An electron source having a plurality of
electron-emitting devices, wherein said electron-
emitting device is the electron-emitting device
according to claim 12.

20 14. An image-forming apparatus having an electron
source and an image forming member, wherein said
electron source is the electron source according to
claim 13.

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